

Appl. No. 10/889,177
Reply to Office action of 12/10/2004

REMARKS

Reconsideration of the above-referenced application in view of the above amendment, and of the following remarks, is respectfully requested.

Claims 1-20 are pending in this case. Claims 1-2, 5-12, and 15-20 are amended herein.

The Claims are amended herein to replace the terms "includes" and "including" with ~~comprises~~ and ~~comprising~~.

The Examiner rejected claim 20 under 35 U.S.C. 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 20 is amended to depend from claim 18, which provides antecedent basis, rather than claim 1.

The Examiner rejected claims 1, 3 and 5-7 under 35 U.S.C. 102(e) as being anticipated by Tseng (U.S. Patent 6,093,621).

Applicant respectfully submits that amended claim 1 is unanticipated by Tseng as there is no disclosure or suggestion in the reference of forming an opening in a substrate through a patterned photoresist layer and a hardmask layer, trimming the photoresist layer to create an exposed portion of the hardmask layer, removing the exposed portion, and after removing the exposed portion, creating a trench. Tseng teaches forming a trench through a patterned photoresist, dielectric layer, and pad oxide. The dielectric layer around the trench is removed and the trench is filled. Tseng does teach eroding the photoresist layer and removing the exposed portion of the dielectric layer. Tseng also teaches that the substrate may consequently be etched

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while removing the exposed portion of the dielectric layer. However, Tseng does not disclose or suggest creating the trench after removing the exposed portion. The trench in Tseng is created prior to eroding the resist and while the trench may be further etched while removing the exposed portion, no trench is created or etched after removing the exposed portion. Accordingly, Applicant respectfully submits that claim 1 and the claims dependent thereon are unanticipated by Tseng.

The Examiner rejected claims 2, 4 and 8-9 under 35 U.S.C. 103(a) as being unpatentable over Tseng (U.S. Patent 6,093,621) in view of Miller (U.S. 6,287,974).

Applicant respectfully submits that claims 2, 4, and 8-9 are patentable over Tseng in view of Miller as there is no disclosure or suggestion in the references of forming an opening in a substrate through a patterned photoresist layer and a hardmask layer, trimming the photoresist layer to create an exposed portion of the hardmask layer, removing the exposed portion, and after removing the exposed portion, creating a trench, as required by claim 1 from which these claims ultimately depend. As discussed above, Tseng does not disclose or suggest creating the trench after removing the exposed portion of the hardmask layer. Miller is applied to teach the use of a bottom anti-reflective coating and using the same plasma tool. Miller is not applied to teach creating a trench after removing the exposed portion. Accordingly, Applicant respectfully submits that claims 2, 4, 8, and 9 are patentable over the references.

The Examiner rejected claims 10-11, 13, 15-17 and 20 under 35 U.S.C. 103(a) as being unpatentable over Tseng (U.S. Patent 6,093,621) in view of Kadosh et al. (U.S. 5,770,483).

Applicant respectfully submits that dependent claim 10 is patentable over Tseng in view of Kadosh as there is no disclosure or suggestion in the references of forming an opening in a substrate through a patterned photoresist layer and a hardmask layer, trimming the photoresist layer to create an exposed portion of the hardmask layer,

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removing the exposed portion, and after removing the exposed portion, creating a trench, as required by claim 1 from which claim 10 depends. As discussed above, Tseng does not teach creating the trench after removing the exposed portion of the hardmask layer. Kadosh is applied to teach forming isolation structures between active areas. Kadosh is not applied to teach creating a trench after removing the exposed portion. Accordingly, Applicant respectfully submits that claim 10 is patentable over the references.

Applicant respectfully submits that amended claim 11 is patentable over the references as there is no disclosure or suggestion in the references of forming an opening in a substrate through a patterned photoresist layer and a hardmask layer, trimming the photoresist layer to create an exposed portion of the hardmask layer, removing the exposed portion, and after removing the exposed portion, creating a trench. As discussed above, Tseng fails to disclose or suggest creating the trench after removing the exposed portion of the hardmask layer. Kadosh is applied to teach forming isolation structures between active areas. Kadosh is not applied to teach creating a trench after removing the exposed portion. Accordingly, Applicant respectfully submits that claim 11 and the claims dependent thereon are patentable over the references.

The Examiner rejected claims 12, 14, 18-19 under 35 U.S.C. 103(a) as being unpatentable over Tseng (U.S. Patent 6,093,621) in view of Kadosh et al. (U.S. 5,770,483) as applied to claims 11, 13-17 above, and further in view of Miller (U.S. 6,287,974).

Applicant respectfully submits that claims 12, 14, 18, and 19 are patentable over Tseng in view of Kadosh and Miller as there is no disclosure or suggestion in the references of forming an opening in a substrate through a patterned photoresist layer